



## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 52

#### [EPA-R10-OAR-2013-0005: FRL-9944-89-Region 10]

### **Finding of Attainment and Approval of Attainment Plan for Klamath Falls, Oregon Fine Particulate Matter Nonattainment Area**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA) is proposing to make a finding of attainment by the attainment date for the Klamath Falls, Oregon nonattainment area (the area) based upon quality-assured, quality-controlled, and certified ambient air monitoring data showing that the area has monitored attainment of the 2006 24-hour fine particulate matter (PM<sub>2.5</sub>) National Ambient Air Quality Standards (NAAQS) based on the 2012-2014 data available in the EPA's Air Quality System (AQS) database. The proposed finding of attainment does not constitute a redesignation to attainment. Redesignations require states to meet a number of criteria including EPA approval of a state plan to maintain the air quality standard for 10 years after redesignation.

The EPA also proposes to approve revisions to Oregon's State Implementation Plan (SIP) consisting of the Klamath Falls Fine Particulate Matter Attainment Plan (attainment plan) and approve and incorporate by reference associated revisions to the Oregon Administrative Rules (OAR), submitted by the Oregon Department of Environmental Quality (ODEQ) on December 12, 2012. The purpose of the attainment plan was to attain the 2006 24-hour PM<sub>2.5</sub> NAAQS by

the December 2014 attainment date included in the plan, which the area met based on 2012-2014 monitoring data.

The attainment plan addressed the nonattainment planning requirements of the Clean Air Act (CAA or Act). The attainment plan included comprehensive base year and attainment year emissions inventories for direct PM<sub>2.5</sub> emissions and all particulate matter precursors, analysis and selection of reasonably available control measures and reasonably available control technologies (RACT and RACT), demonstrated attainment through selected permanent and enforceable control strategies, included required contingency measures, and addressed reasonable further progress and quantitative milestone requirements through the attainment demonstration. The attainment plan's strategy for controlling direct and precursor PM<sub>2.5</sub> emissions relied primarily on an episodic woodstove curtailment program and a program to change-out uncertified woodstoves. Additional emissions reductions came from control measures and activities associated with industrial sources and motor vehicles.

**DATES:** Comments must be received on or before **[insert date 30 days after date of publication in the Federal Register]**.

**ADDRESSES:** Submit your comments, identified by Docket ID No.EPA-R10-OAR-2013-0005 at <http://www.regulations.gov>. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or

comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <http://www2.epa.gov/dockets/commenting-epa-dockets>.

*Docket:* All documents in the electronic docket are listed in the <http://www.regulations.gov> index. Although listed in the index, some information is not publicly available, *i.e.*, CBI or other information that is restricted by statute from disclosure. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available at <http://www.regulations.gov> or at EPA Region 10, Office of Air, Waste and Toxics, 1200 Sixth Avenue, Seattle, Washington 98101. The EPA requests that you contact the person listed in the FOR FURTHER INFORMATION CONTACT section to schedule your inspection. The Regional Office's official hours of business are Monday through Friday, 8:30am to 4:30pm, excluding Federal holidays.

**FOR FURTHER INFORMATION CONTACT:** Justin A. Spenillo at (206) 553-6125, [spenillo.justin@epa.gov](mailto:spenillo.justin@epa.gov), or the above EPA, Region 10 address.

**SUPPLEMENTARY INFORMATION:** Throughout this document, wherever "we," "us," or "our" is used, it is intended to refer to the EPA.

## **TABLE OF CONTENTS:**

- I. Background for the EPA's Proposed Action
  - A. History of the PM<sub>2.5</sub> Standard
  - B. Effect of the January 4, 2013 D.C. Circuit Decision Regarding PM<sub>2.5</sub> Implementation Under Subpart 4
  - C. CAA PM<sub>2.5</sub> Nonattainment Area Requirements
  - D. Klamath Falls Particulate Matter History
- II. Finding of Attainment and Clean Data Determination
- III. Analysis of Oregon's Submittal
  - Previously Approved Attainment Plan Elements*
    - A. Emissions Inventory

- B. Control Measures - Oregon Rules and Klamath County Ordinance
- C. Classifications
- Attainment Plan Elements Proposed for Approval*
  - D. Attainment Date
  - E. Attainment Demonstration
  - F. Modeling
  - G. Characterization of Klamath Falls Air Shed
  - H. Reasonably Available Control Measures / Reasonably Available Control Technology (RACT/RACM)
  - I. Contingency Measures
  - J. Reasonable Further Progress (RFP) and Quantitative Milestones
- Additional Elements*
  - K. Conformity Requirements
  - L. Klamath Falls Exceptional Event Demonstration and Concurrence
- IV. Proposed Action
- V. Incorporation by Reference
- VI. Statutory and Executive Order Reviews

## **I. Background for the EPA's Proposed Action**

### **A. History of the PM<sub>2.5</sub> Standard**

On July 18, 1997, the EPA established the 1997 PM<sub>2.5</sub> NAAQS, including an annual standard of 15.0 µg/m<sup>3</sup> based on a 3-year average of annual mean PM<sub>2.5</sub> concentrations, and a 24-hour (or daily) standard of 65 µg/m<sup>3</sup> based on a 3-year average of the 98<sup>th</sup> percentile of 24-hour concentrations (62 FR 38652). The EPA established the 1997 PM<sub>2.5</sub> NAAQS based on significant evidence and numerous health studies demonstrating the serious health effects associated with exposures to PM<sub>2.5</sub>. To provide guidance on the CAA requirements for state and tribal implementation plans to implement the 1997 PM<sub>2.5</sub> NAAQS, the EPA promulgated the “Final Clean Air Fine Particle Implementation Rule” (72 FR 20586, April 25, 2007) (hereinafter, the “2007 PM<sub>2.5</sub> Implementation Rule”).

On October 17, 2006, the EPA strengthened the 24-hour PM<sub>2.5</sub> NAAQS to 35 µg/m<sup>3</sup> and retained the level of the annual PM<sub>2.5</sub> standard at 15.0 µg/m<sup>3</sup> (71 FR 61144). Following promulgation of a new or revised NAAQS, the EPA is required by the CAA to promulgate

designations for areas throughout the United States; this designation process is described in section 107(d)(1) of the CAA. On November 13, 2009, the EPA designated areas as either attainment/unclassifiable or nonattainment with respect to the revised 2006 24-hour PM<sub>2.5</sub> NAAQS (74 FR 58688). In that November 2009 action, the EPA designated Klamath Falls, Oregon, as nonattainment for the 2006 24-hour PM<sub>2.5</sub> NAAQS, requiring Oregon to prepare and submit an attainment plan for the Klamath Falls area to meet the revised 24-hour PM<sub>2.5</sub> NAAQS. On March 2, 2012, the EPA issued “Implementation Guidance for the 2006 24-Hour Fine Particulate (PM<sub>2.5</sub>) National Ambient Air Quality Standards (NAAQS)” to provide guidance on the development of SIPs to demonstrate attainment with the revised 24-hour standard (March 2012 Implementation Guidance). The March 2012 Implementation Guidance explained that the overall framework and policy approach of the 2007 PM<sub>2.5</sub> Implementation Rule provided effective and appropriate guidance on statutory requirements for the development of SIPs to attain the 2006 24-hour PM<sub>2.5</sub> NAAQS. Accordingly, the March 2012 Implementation Guidance instructed states to rely on the 2007 PM<sub>2.5</sub> Implementation Rule in developing SIPs to demonstrate attainment with the 2006 24-hour PM<sub>2.5</sub> NAAQS.

**B. Effect of the January 4, 2013 D.C. Circuit Court Decision Regarding PM<sub>2.5</sub> Implementation Under Subpart 4**

On January 4, 2013, the D.C. Circuit Court issued a decision in *NRDC v. EPA*, 706 F.3d 428, holding that the EPA erred in implementing the 1997 PM<sub>2.5</sub> NAAQS pursuant to the general implementation provisions of subpart 1 of Part D of Title I of the CAA (subpart 1), rather than the particulate-matter-specific provisions of subpart 4 of Part D of Title I (subpart 4). The Court did not vacate the 2007 PM<sub>2.5</sub> Implementation Rule but remanded the rule with instructions for the EPA to promulgate new implementation regulations for the PM<sub>2.5</sub> NAAQS in accordance with the requirements of subpart 4. On June 6, 2013, consistent with the Court’s remand

decision, the EPA withdrew its March 2012 Implementation Guidance which relied on the 2007 PM<sub>2.5</sub> Implementation Rule to provide guidance for the 2006 24-hour PM<sub>2.5</sub> NAAQS.

Prior to the January 4, 2013 Court decision, states had worked towards meeting the air quality goals of the 2006 PM<sub>2.5</sub> NAAQS in accordance with the EPA regulations and guidance derived from subpart 1 of Part D of Title I of the CAA. The EPA considered this history in issuing the PM<sub>2.5</sub> Subpart 4 Nonattainment Classification and Deadline Rule (79 FR 31566, June 2, 2014) that identified the initial classification under subpart 4 for areas currently designated nonattainment for the 1997 and/or 2006 PM<sub>2.5</sub> standards as moderate. The final rule also established December 31, 2014 as the deadline for the states to submit any additional SIP elements related to attainment.

The ODEQ submitted an attainment plan for Klamath Falls on December 12, 2012. The plan included measures to demonstrate attainment in December 2014. Concurrent with the December 31, 2014 deadline for submitting any supplements necessary to address possible subpart 4 elements, Klamath Falls came into attainment based on 2012-2014 monitoring data. Leading up to December 31, 2014 deadline, both the ODEQ and the EPA followed monitoring data closely to ensure that the area was meeting targets consistent with the modeling demonstration submitted in the attainment plan. Because the area was on a path toward attainment by December 2014 and the submitted attainment plan substantively addressed the specific PM<sub>2.5</sub> problems in the airshed, the ODEQ did not submit a supplement to its attainment plan. Therefore, the EPA evaluated the State's existing attainment plan submission for the 2006 PM<sub>2.5</sub> NAAQS to determine that it met not only the applicable requirements of subpart 1, but also the applicable requirements of subpart 4. This approach is consistent with the Court's decision that the EPA must implement the PM<sub>2.5</sub> NAAQS consistent with the requirements of

subpart 4. In this notice, the EPA reviews the ODEQ's attainment plan submitted to comply with the requirements of subpart 1 and provides an evaluation of why we believe the submittal also satisfies subpart 4 requirements, including the applicable attainment date, and an analysis of all sources of particulate matter emissions and PM<sub>2.5</sub> precursors for control strategies.

### **C. CAA PM<sub>2.5</sub> Moderate Area Nonattainment Requirements**

With respect to the requirements for attainment plans, the EPA notes that the general nonattainment area planning requirements are found in subpart 1, and the moderate area planning requirements for particulate matter are found in subpart 4. The EPA has a longstanding general guidance document that interprets the 1990 amendments to the CAA commonly referred to as the "General Preamble" (57 FR 13498, April 16, 1992). The General Preamble addresses the relationship between subpart 1 and subpart 4 requirements and provides recommendations to states for meeting statutory requirements for particulate matter nonattainment planning. Specifically, the General Preamble explains that requirements applicable to moderate area nonattainment SIPs are set forth in subpart 4, but such SIPs must also meet the general nonattainment planning provisions in subpart 1, to the extent these provisions "are not otherwise subsumed by, or integrally related to," the more specific subpart 4 requirements (57 FR 13538, April 16, 1992). Additionally, the EPA proposed the *Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements* rule (80 FR 15340, March 23, 2015), to clarify our interpretation of the statutory requirements that apply to Moderate and Serious PM<sub>2.5</sub> nonattainment areas (NAAs) under subparts 1 and 4.

The requirements of subpart 1 for attainment plans include: (1) the section 172(c)(1) requirements for reasonably available control measures (RACM), reasonably available control technology (RACT) and attainment demonstrations; (2) the section 172(c)(2) requirement to

demonstrate reasonable further progress (RFP); (3) the section 172(c)(3) requirement for emissions inventories; (4) the section 172(c)(5) requirements for a nonattainment new source review (NSR) permitting program; and (5) the section 172(c)(9) requirement for contingency measures.

The subpart 4 requirements for moderate areas are generally comparable with the subpart 1 requirements and include: (1) the section 189(a)(1)(A) NSR permit program requirements; (2) the section 189(a)(1)(B) requirements for attainment demonstration; (3) the section 189(a)(1)(C) requirements for RACM; and (4) the section 189(c) requirements for RFP and quantitative milestones. In addition, under subpart 4 the moderate area attainment date is no later than the end of the 6<sup>th</sup> calendar year after designation.

The EPA evaluated the ODEQ's attainment plan for the Klamath Falls area for the 2006 24-hr PM<sub>2.5</sub> NAAQS and believes that the State's submission satisfies the relevant requirements of both subpart 1 and subpart 4, as discussed below.

#### **D. Klamath Falls Particulate Matter History**

The Klamath Falls area has a history of successfully addressing particulate matter for over 25 years. In 1987, the EPA designated Klamath Falls a nonattainment area for PM<sub>10</sub> – particulate matter ten micrometers and smaller. The ODEQ prepared a PM<sub>10</sub> attainment plan for the Klamath Falls Urban Growth Boundary (UGB) in 1991. The ODEQ revised and re-submitted the plan in 1995, and the EPA approved it on April 14, 1997 (62 FR 18047). The area's monitor began attaining the standard in 1992 and has not exceeded the standard since that time. In 2002, the ODEQ submitted a redesignation request and maintenance plan for PM<sub>10</sub>. This plan demonstrated that the necessary control strategies were in place to maintain the PM<sub>10</sub> NAAQS and the EPA approved the plan on October 21, 2003 (68 FR 60036). The attainment



and maintenance plans relied on a mandatory episodic woodstove curtailment program and a large woodstove change-out program to reduce emissions from the primary contributor of particulate matter in the area. Additional measures provided control on industrial emissions and are discussed later in this notice. The area has continued to maintain the PM<sub>10</sub> NAAQS.

In 1997, the EPA revised the particulate standard to include PM<sub>2.5</sub> (particulate matter 2.5 micrometers in diameter and smaller) at a daily standard of 65 µg/m<sup>3</sup>. Due to the same set of control measures that it used to address exceedances of the PM<sub>10</sub> standard, Klamath Falls successfully remained below the PM<sub>2.5</sub> standard promulgated in 1997. When the EPA tightened the PM<sub>2.5</sub> standard from 65µg/m<sup>3</sup> to 35µg/m<sup>3</sup> in 2006, Klamath Falls was found to be exceeding the new standard. The EPA subsequently designated the area as nonattainment for the 2006 24-hour PM<sub>2.5</sub> standard in November 2009, prompting the adoption of more stringent control measures and submission of the attainment plan in 2012.

## **II. Finding of Attainment and Clean Data Determination**

Pursuant to sections 179(c) and 188(b)(2) of the Act, the EPA has the responsibility of determining within six months of the applicable attainment date whether nonattainment areas attained the NAAQS based on certified air quality data. The EPA reviewed the PM<sub>2.5</sub> ambient air monitoring data from the Peterson School regulatory monitor (AQS site 41-035-0004 POC1), consistent with the requirements contained in 40 CFR part 50, as recorded in the EPA Air Quality System (AQS) database for the Klamath Falls area. For purposes of determining attainment by the attainment date, the EPA considered data recorded in the AQS database, certified as meeting quality assurance requirements, and determined to have met data completeness requirements. On the basis of this review, the EPA has concluded that the Klamath Falls area attained the 2006 24-hour PM<sub>2.5</sub> NAAQS during the 2012–2014 monitoring period -

<http://www.epa.gov/airtrends/values.html>. Specifically, under the EPA regulations at 40 CFR 50.7, the 24-hour primary and secondary PM<sub>2.5</sub> NAAQS are met when the 98th percentile 24-hour concentration is less than or equal to 35 µg/m<sup>3</sup>. The design value (the metrics calculated in accordance with 40 CFR part 50, appendix N, for determining compliance with the NAAQS) for the 2006 24-hour PM<sub>2.5</sub> NAAQS for the years 2012–2014 at the Peterson School monitor was 34 µg/m<sup>3</sup>, meeting the 2006 24-hour PM<sub>2.5</sub> NAAQS by the applicable attainment date established in the 2012 attainment plan. As a result, the EPA proposes to determine that the area has attained the 2006 24-hour PM<sub>2.5</sub> NAAQS.

Additionally, the EPA is proposing to determine that the area has clean data for the 2006 24-hour PM<sub>2.5</sub> NAAQS. This determination is based upon quality-assured, quality-controlled, and certified ambient air monitoring data showing that the area has monitored attainment of the 2006 PM<sub>2.5</sub> NAAQS based on 2012-2014 monitoring data, discussed above. Under a Clean Data Determination (CDD), the requirements for the area to submit an attainment demonstration, associated RACM, RFP plan, contingency measures, and any other planning SIP requirements related to attainment of the 2006 24-hour PM<sub>2.5</sub> NAAQS would be suspended for so long as the area continues to meet this NAAQS. If EPA subsequently determines that the area is in violation of the 2006 24-hour PM<sub>2.5</sub> NAAQS, the basis for the suspension of the specific requirements, set forth at 40 CFR 51.1004(c), would no longer exist and the area would thereafter have to address the pertinent requirements. Although a CDD suspends the requirement for submission of certain attainment planning elements, it does not relieve the EPA of its responsibility to take action on a state's SIP submission. As described in this action, the EPA is proposing to fully approve the remaining elements of the Klamath Falls nonattainment plan as meeting the requirements of the CAA.

The proposed finding of attainment by the attainment date and clean data determination that the air quality data shows attainment of the 2006 24-hour PM<sub>2.5</sub> NAAQS is not equivalent to the redesignation of the area to attainment. This proposed action, if finalized, will not constitute a redesignation to attainment under section 107(d)(3) of the CAA, because the state must have an approved maintenance plan for the area as required under section 175A of the CAA, and a determination that the area has met the other requirements for redesignation in order to be redesignated to attainment. The designation status of the area will remain nonattainment for the 2006 PM<sub>2.5</sub> NAAQS until such time as the EPA determines that the area meets the CAA requirements for redesignation to attainment in CAA section 107(d)(3)(E).

### **III. Analysis of Oregon's Submittal**

In accordance with Sections 172(c) and 189 of the CAA, the attainment plan that the ODEQ submitted for the Klamath Falls area included comprehensive base year and attainment year emissions inventories that addressed direct particulate matter emissions and all particulate matter precursors, analyzed RACM and RACT, demonstrated attainment through selected permanent and enforceable control strategies, included required contingency measures, and addressed reasonable further progress and quantitative milestone requirements through the attainment demonstration. The attainment plan's strategy for controlling direct and precursor PM<sub>2.5</sub> emissions relied primarily on an episodic woodstove curtailment program and the change-out of uncertified woodstoves. Additional emissions reductions came from control measures and activities associated with industrial sources, motor vehicles, and public education.

The rule revisions submitted by the ODEQ and the ordinances passed by Klamath County support the implementation of these control measures in a manner that is both permanent and enforceable. The EPA approved, on August 25, 2015, the baseline emissions inventory and

control measures associated with this attainment plan (80 FR 51470). By including these measures in the SIP, the state has made them permanent and enforceable, and with the EPA's approval of these control measures on August 25, 2015, the measures have become federally enforceable. This submittal also addresses transportation conformity budgets and the EPA's proposed approval to exclude data from wildfire exceptional events affecting data on September 25, 2009 (for purposes of the attainment demonstration), August 25, 2012, August 28, 2012, August 31, 2012, July 30, 2013, and August 5, 2013 (for purposes of the finding of attainment) that affected the regulatory monitor in Klamath Falls.

#### *Previously Approved Attainment Plan Elements*

##### **A. Emissions Inventory**

The baseline emission inventory requirements were approved in an action completed on August 25, 2015 (80 FR 51470). The approved emissions inventory covered direct PM<sub>2.5</sub> and precursors to the formation of PM<sub>2.5</sub> (nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOCs), ammonia (NH<sub>3</sub>), and sulfur dioxide (SO<sub>2</sub>)) to meet the comprehensive emissions inventory requirement of CAA section 172(c) for the 2006 24-hour PM<sub>2.5</sub> NAAQS. The emissions inventory applicable to the attainment demonstration and the attainment year inventory will be discussed in the Modeling and Attainment Demonstration sections of this notice.

##### **B. Control Measures – Oregon Rules and Klamath County Ordinance**

The December 12, 2012 attainment plan submitted by the ODEQ included revisions to a number of administrative rules to implement the attainment plan for the Klamath Falls area. These revisions consisted of updates to identify the Klamath Falls nonattainment area and to adopt local and state measures to ensure permanent and enforceable control strategies and

contingency measures, as described in the attainment plan, to bring the area back into attainment in the event the area failed to meet RFP or failed to attain the NAAQS by the applicable attainment date. Specifically, the ODEQ revised rules in OAR 340, Divisions 200, 204, 225, 240, 262, and 264. The EPA already provided notice and comment on these rules, except for the contingency measures, and proposed to approve the rules on December 30, 2014 (79 FR 78372) and finalized the action on August 25, 2015 (80 FR 51470). These control measures were relied upon by Klamath Falls to attain the standard by 2014 and will remain in place for continued maintenance of the standard. Further details on these control measures can be found in the docket for this action within the Klamath Falls attainment plan submittal as well as in the proposed and final *Federal Register* notices approving these measures.

#### **C. Classifications**

The applicable attainment planning requirements under subpart 4 (section 189(a) and (b)) depend on whether the nonattainment area is classified as moderate or serious. In response to the Court's decision in *NRDC v. EPA*, the EPA finalized on June 2, 2014, initial classifications of all current 1997 and 2006 PM<sub>2.5</sub> nonattainment areas as moderate (79 FR 31566). Thus, the attainment plan submitted by the ODEQ for the Klamath Falls area is evaluated pursuant to the moderate area requirements of subpart 4.

#### *Attainment Plan Elements Proposed For Approval*

#### **D. Attainment Date**

The CAA requirements of subpart 4 include a demonstration that a nonattainment area will meet applicable NAAQS within the timeframe provided in the statute (Section 189(c)(1)). For the 2006 PM<sub>2.5</sub> 24-hour NAAQS, an attainment plan must show that a moderate nonattainment area will attain the standard as expeditiously as practicable but no later than the

end of the sixth calendar year after the area's designation, which in the case of Klamath Falls is December 31, 2015. In the Klamath Falls attainment plan the ODEQ demonstrated that attainment by December 2014 was as expeditious as practicable based on the implementation of all reasonably available control measures (RACM) and that the attainment date could not be advanced by a year or more with additional reasonable measure (e.g. RACM). The EPA is proposing to approve the attainment date of December 2014 as submitted by the ODEQ, which the area successfully met as confirmed by quality-assured, quality-controlled, and certified ambient air monitoring data.

#### **E. Attainment Demonstration**

Section 189(a)(1)(B) requires that a moderate area nonattainment plan contain either a demonstration that the plan will provide for attainment by the applicable attainment date, or a demonstration that attainment by such date is impracticable. In the attainment demonstration section of the Klamath Falls PM<sub>2.5</sub> attainment plan, the ODEQ described how its chosen control strategies would provide the emissions reductions needed to bring the area into attainment no later than December 2014. Quality-assured, quality-controlled, and certified ambient air monitoring data confirm that the area has attained the 2006 24-hour PM<sub>2.5</sub> NAAQS by December 2014.

**Table 1—Attainment Demonstration Strategies for the Klamath Falls Area**

<b>Control Strategies</b>	<b>Projected Air Quality Benefit (<math>\mu\text{g}/\text{m}^3</math>)</b>
<b>Baseline Design Value 2008</b>	<b>45.1</b>
Klamath Clean Air Ordinance (updated) <ul style="list-style-type: none"> <li>• Woodstove curtailment – lower thresholds and increased enforcement</li> <li>• Shorter open burning window</li> </ul>	9.6
Woodstove Change-out Programs	1.0
Heat Smart- woodstove change-out upon sale of home	0.3

Maximum Achievable Control Technology (MACT) particleboard and hardboard	0.1
Public Awareness	0.6
New fireplace standards	0.1
Transportation and Fuel Related Emissions	Minimal
• Diesel Retrofits	
• Low Emission Vehicle Program	
• Fuel Economy	
Road Paving	Minimal
<b>Future Design Value 2014</b>	<b>34.6*</b>

\*The individual emission reduction estimates in this table are derived from the modeled Future Design Value in 2014. The air quality benefit for individual control measures were assessed in isolation and are presented as such in Table 1. Because the control strategies interact nonlinearly, the final design value is not a simple subtraction of the individual measures' benefits from the baseline design value. When all control strategies are simulated together, their benefit is less than it would appear because, for instance, the curtailment ordinance has a smaller benefit when stoves have been changed out to be cleaner.

Using the values in Table 1, results from the roll-forward modeling showed that the control strategies would achieve a future year design value of  $35 \mu\text{g}/\text{m}^3$  with a relative response factor (RRF) of 0.717, as explained in more detail in the modeling discussion. In order to provide a buffer to ensure attainment, the ODEQ, Klamath Falls, and Klamath County implemented additional measures which yielded a modeled design value of  $34.6 \mu\text{g}/\text{m}^3$  with an RRF of 0.667. As noted in the RACM/RACT discussion later in this document, more than 95% of the projected control strategy air quality benefits came from the Klamath Falls Clean Air Ordinance wood smoke curtailment program (the Ordinance), woodstove change-out program, and the Heat Smart program. The ODEQ and Klamath County relied on the Ordinance and the woodstove change-out program to successfully attain the 2006  $\text{PM}_{2.5}$  NAAQS. The woodstove curtailment program restricts residential wood burning on days when the ambient  $\text{PM}_{2.5}$  levels are close to exceeding the standard. Additional reductions came from the control of industrial sources and from continuing reductions in direct  $\text{PM}_{2.5}$  emissions from cleaner motor vehicles, as described later in this document.

The ODEQ included a number of supplemental analyses in the attainment plan for a weight of evidence demonstration of attainment, as recommended by the EPA's modeling guidance. Attachments 3.3 b-e, g-o, w, and y of the submitted plan (located in the docket) describe the Klamath Falls airshed, the source sector contributions, and the ability of emission controls to reduce PM<sub>2.5</sub> concentrations.

The ODEQ identified wood burning emissions as the most significant source sector in the emissions inventory and thus the key source sector to attainment with its readily available emissions reductions. Accordingly, in formulating an emissions control strategy, the ODEQ conducted detailed wood burning surveys for the Klamath Falls area, assessed the contribution of secondary organic aerosol to overall PM<sub>2.5</sub>, used locally-derived estimates for how well wood burners follow the yellow and red curtailment requirements, assessed the impact of prescribed burning on wintertime PM<sub>2.5</sub>, and used the best available emission factors for wood burning devices. This level of analysis is consistent with other moderate nonattainment areas where wood burning is a significant issue.

In addition to demonstrating attainment using the roll-forward model, the ODEQ also conducted an unmonitored area analysis (UMAA) to demonstrate that other parts of the nonattainment area would also meet the 2006 24-hour PM<sub>2.5</sub> NAAQS. This analysis used data from seven monitors in the area for a saturation survey in 2010-2011 to develop a map of PM<sub>2.5</sub> concentration relative to the main monitor at the Peterson School. The UMMA calculated the PM<sub>2.5</sub> from point sources at 1.2 kilometer intervals in the nonattainment area and added this calculation to the projected concentration from all other sources. Results from the UMMA showed that the Peterson Area monitor is the area of highest neighborhood-scale concentration,



such that one could reasonably infer that unmonitored areas of the nonattainment area were in attainment based on a finding of attainment at the Peterson Area monitor.

## **F. Modeling**

All attainment demonstrations must project air quality below the standard using standard modeling techniques. The ODEQ submitted a modeled demonstration that is consistent with the recommendations contained in EPA's modeling guidance document "Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM<sub>2.5</sub>, and Regional Haze" (EPA-454/B-07-002, April 2007) and the June 28, 2011, memorandum from Tyler Fox to Regional Air Program Managers, "Update to the 24-hour PM<sub>2.5</sub> Modeled Attainment Test." Modeling should be based on national (e.g., EPA), regional (e.g., Western Regional Air Partnership) or local modeling, or a combination thereof, if appropriate. The April 2007 guidance indicates that states should review supplemental analyses, in combination with the modeling analysis, in a "weight of evidence" assessment to determine whether each area is likely to achieve timely attainment.

To determine which control strategies to implement, the ODEQ began by characterizing the area's emissions. Along with developing the 2008 baseline emissions inventory, the ODEQ also conducted a series of analyses to better understand particulate matter in Klamath Falls. This included conducting and reviewing studies, analyzing filter samples, and modeling.

For modeling attainment in Klamath Falls, the ODEQ used a roll-forward model as the basis for projecting future design values and the effect of control strategies. A standard roll-forward model assumes all sources contribute to the Peterson School monitor in proportion to their weight in the emissions inventory. This is a reasonable assumption for most source categories which were mostly direct PM<sub>2.5</sub> because they are relatively well-distributed within the

nonattainment area, but for certain source categories such as large point sources, prescribed burning, and road dust, this assumption is not always accurate. For these three source categories, effective primary  $PM_{2.5}$  and  $PM_{2.5}$  precursor emission rates were derived from additional analyses including AERMOD atmospheric dispersion modeling for large point sources, positive matrix factorization (PMF) modeling for road dust, and analysis of historical prescribed burning and its impact on  $PM_{2.5}$  at the Peterson School monitor. The ODEQ developed several emissions inventories for modeling, one for the current emissions for the baseline year of 2008 and two for the attainment year of 2014. The projected 2014 attainment year inventory accounts for all changes (i.e. vehicle fleet turnover, population changes) that were expected to occur from 2008 to 2014, except for the locally imposed control strategies. The ODEQ then applied each local control strategy to the 2014 modeling inventory in isolation, and as a group, as part of developing the control 2014 inventory for modeling. When each of these modeling inventories was run through the model, the ODEQ was able to estimate the relative change in  $PM_{2.5}$  resulting from each control strategy in isolation and from all control strategies at the same time. See Table 1 in the Attainment Demonstration section.

The relative change in modeled, species-specific  $PM_{2.5}$  concentrations at the Peterson School monitor between the 2014 control strategy run and the 2008 baseline is referred to as a Relative Response Factor (RRF). The ODEQ calculated RRFs separately for each chemical component of  $PM_{2.5}$ , per the EPA modeling guidance. The RRFs for ammonium, sulfate, nitrate, and particle-bound water were held at 1.0 (i.e. constant), which is a conservative assumption implying that there will be no reduction in precursor emissions. However,  $NO_x$  emissions are projected to decline from 2,236 tons per year (tpy) in 2008 to 1,810 tpy in 2014, VOC emissions are projected to decline from 2,910 tpy in 2008 to 2,645 in 2014, and ammonia emission

inventories are projected to remain fairly level at 244 tpy in 2008 and 247 tpy in 2014. The RRF for organic carbon and elemental carbon are allowed to fluctuate based on projected emissions and the model, but the RRF for organic aerosol does not account for changes in secondary organic aerosol because a chemical box model analysis conducted by the ODEQ and Portland State University (Appendix A-6-1 of the attainment plan) found that contributions from both biogenic and anthropogenic secondary organic aerosol (SOA) sources were minor (less than 1% and 3%, respectively, of total design value  $PM_{2.5}$ ). By keeping the RRF constant for secondary  $PM_{2.5}$ , the ODEQ took a conservative approach in modeling emission reductions because the emissions inventory values for most secondary  $PM_{2.5}$  precursors were projected to decline between 2008 and 2014 due to control measures already in place. In the attainment plan submission,  $SO_2$  emission inventories were projected to increase slightly from 110 tpy in 2008 to 136 tpy in 2014. However, it is important to note that 32.2 tpy of projected growth in the  $SO_2$  emissions inventory was due to the anticipated addition of the Klamath Falls Bioenergy facility that was expected to be built by 2014. This facility has since withdrawn its application for a site certification and will not be constructed. Removing these projected emissions results in a net decrease of 6.2 tpy in overall projected  $SO_2$  emissions from 2008 to 2014.

The ODEQ applied the species-specific RRFs to the baseline 2006-2010 monitored data based on the EPA's guidance to estimate 2014 design values. The modeling projected an attainment date of December 2014 which the area achieved. The EPA carefully evaluated the ODEQ's modeling demonstration and concluded that it adequately meets the current EPA modeling requirements, and uses acceptable modeling techniques to project attainment by the December 2014 attainment date.

In addition, the EPA believes that the attainment demonstration modeling submitted by the ODEQ meets subpart 4 requirements. First, section 189(a)(1)(B) provides that for a moderate nonattainment area, a state must submit either a demonstration (including air quality modeling) that the plan will provide for attainment by the applicable attainment date or a demonstration that attainment by such date is impracticable. The applicable attainment date for moderate areas in section 188(c)(1) of subpart is as expeditiously as practicable but no later than the end of the sixth calendar year after the area's designation, or, as applied to Klamath Falls, December 2015. The ODEQ's modeling demonstrated attainment by December 2014, which is a year earlier than the December 2015 attainment deadline. Second, the modeling relied upon by the ODEQ included both direct PM<sub>2.5</sub> and PM<sub>2.5</sub> precursors. The ODEQ's weight of evidence analysis is further supported by quality-assured, quality-controlled, and certified ambient air monitoring data showing that the area has monitored attainment of the 2006 24-hour PM<sub>2.5</sub> NAAQS based on the 2012-2014 data. For these reasons, the EPA proposes to find that the ODEQ's modeling is consistent with EPA's guidance and meets the attainment demonstration requirements of subparts 1 and 4.

#### **G. Characterization of the Klamath Falls Air Shed**

In evaluating the Klamath Falls attainment plan under the requirements of subpart 4, control of direct PM<sub>2.5</sub> and precursors must be considered. According to CAA section 302(g) the term "air pollutant" means any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive (including source material, special nuclear material, and by product material) substance or matter which is emitted into or otherwise enters the ambient air. Such term includes any precursors to the formation of any air pollutant, to the extent the Administrator has identified such precursor or precursors for the particular purpose for

which the term “air pollutant” is used. The provisions of subpart 4 do not define the term “precursor” for purposes of particulate matter, nor do they explicitly require the control of any specifically identified precursor. However, the EPA has long recognized the scientific basis for concluding that SO<sub>2</sub>, NO<sub>x</sub>, VOC, and ammonia are precursors to PM<sub>10</sub> and to PM<sub>2.5</sub>.<sup>1</sup>

The EPA’s interpretation of section 189(e) and section 172 indicates that consideration of all precursors is necessary for PM<sub>2.5</sub> attainment plans, and RACM/RACT requirements explicitly require the evaluation of available control measures for direct PM<sub>2.5</sub> emissions and precursor emissions from stationary, area, and mobile sources in order to attain as expeditiously as practicable. Section 189(e) requires the control of appropriate precursors from major stationary sources, unless the Administrator determines that precursor emissions from such major stationary sources do not contribute significantly to nonattainment in the area.<sup>2</sup>

While subpart 4 expressly requires control of precursors from major stationary sources where direct PM from major sources is controlled unless certain conditions are met, other sources of precursors may also need to be controlled for the purposes of demonstrating attainment as expeditiously as practicable in a given area. Thus, a state should evaluate all economically and technologically feasible control measures for direct PM<sub>2.5</sub> and PM<sub>2.5</sub> precursor emissions, and should adopt those measures that are deemed reasonably available, *i.e.*, those constituting RACM and RACT controls for sources located in the area. The EPA has interpreted subpart 4 to require analysis for control of precursors from all source categories in a given nonattainment area, unless there is a demonstration that controlling a precursor or precursors is

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<sup>1</sup> See EPA’s 2007 PM<sub>2.5</sub> Implementation Rule at issue in the *NRDC v. EPA* case in which EPA discussed that emissions of SO<sub>2</sub>, NO<sub>x</sub>, VOCs and ammonia are factual and scientific precursors to PM<sub>2.5</sub>. 72 FR 20586, at 20589 – 97. April 25, 2007.

<sup>2</sup> EPA notes that it has already addressed the requirements of subpart 4 for precursors, specifically within the context of the requirements of section 189(e), in the General Preamble. See 57 FR at 13539 and 13541- 2, April 16, 1992.

not necessary for expeditious attainment of the NAAQS in the area. This notice will demonstrate that additional precursor controls beyond those discussed in Oregon's 2012 attainment plan submission will not affect expeditious attainment of the NAAQS in the Klamath Falls area; moreover the area is already attaining the NAAQS with existing controls and additional precursor controls are unnecessary for expeditious attainment.

As discussed in the EPA's 1992 General Preamble, in the event that a state's attainment plan includes controls on major stationary sources for PM<sub>10</sub> in order to achieve timely attainment in the area, section 189(e) requires controls of all PM<sub>10</sub> precursors for major stationary sources located within the area, unless there is a showing that such sources do not contribute significantly to violations in the area (57 FR 13541, April 16, 1992). Thus, the EPA's existing interpretation of subpart 4 requirements with respect to precursors in attainment plans for PM<sub>10</sub>, as set out in the General Preamble, contemplates that states may develop attainment plans that regulate only those precursors that are necessary for purposes of attainment in the area in question, *i.e.*, states may determine that only certain precursors need be regulated for attainment purposes. *Id.*; *see also Assoc. of Irrigated Residents v. EPA, et al.*, 423 F.3d 989 (9<sup>th</sup> Cir. 2005). The EPA believes that application of this same approach to PM<sub>2.5</sub> precursors under subpart 4 is appropriate and reasonable at this time. Indeed, the EPA has already taken action upon attainment plans for the 1997 PM<sub>2.5</sub> NAAQS in other areas after carefully evaluating the state's conclusions regarding which PM<sub>2.5</sub> precursors should be regulated in the area at issue.<sup>3</sup>

The General Preamble describes the assessment of precursors as specific to each nonattainment area, and acknowledges that the determination of precursor significance would

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<sup>3</sup> *See, e.g.*, "Approval and Promulgation of Implementation Plans; California; 2008 San Joaquin Valley PM<sub>2.5</sub> Plan and 2007 State Strategy," (76 FR 69896, November 9, 2011).

likely vary based on the characteristics of the area-wide nonattainment problem. The General Preamble further provides that in making a determination regarding the significance of precursors, the EPA will rely on technical information presented in the state's submittal, including filter analysis, the relative contribution to overall nonattainment, the selected control strategies, as well as other relevant factors (57 FR 13541, April 16, 1992). The remanded 2007 PM<sub>2.5</sub> Implementation Rule also discusses the types of technical analyses that states could perform to demonstrate the significance or insignificance of a particular precursor for purposes of attainment, such as emission inventory information, speciation data information, modeling, or monitoring data.

For the reasons discussed in this section, the EPA believes that the ODEQ's attainment plan adequately evaluated emissions of direct PM<sub>2.5</sub> and PM<sub>2.5</sub> precursors as demonstrated in the attainment plan and supported by attainment of the NAAQS. The PM<sub>2.5</sub> precursor analysis relied on the types of analyses discussed in the General Preamble and the remanded 2007 PM<sub>2.5</sub> Implementation Rule for demonstrating the contribution of PM<sub>2.5</sub> precursors. Based on these analyses, supported by current monitoring data, the ODEQ submittal showed that direct PM<sub>2.5</sub> emissions were the primary contributor to the nonattainment problem and that additional emissions reductions from PM<sub>2.5</sub> precursors were not needed for demonstrating attainment, not economically or technologically feasible to advance the attainment date by one year, and that existing control measures adequately addressed precursors in light of the minimal impact secondary organic formation has on this specific airshed, as evidenced by the Portland State University SOA study and the EPA's Positive Matrix Factorization (PMF) analysis. Accordingly, the ODEQ selected control strategies to reduce emissions of direct PM<sub>2.5</sub> and provided a

demonstration that implementation of these strategies would bring the area into attainment by the attainment date.

The ODEQ's attainment plan for Klamath Falls focused on controlling direct PM<sub>2.5</sub> emissions to attain the 2006 24-hr PM<sub>2.5</sub> NAAQS. Notably, this was the predominant strategy for controlling PM<sub>2.5</sub> in Tacoma, Washington, which is similarly impacted by direct PM<sub>2.5</sub> emissions from residential wood smoke and was recently redesignated to attainment as a result of its implementation of residential wood smoke direct PM<sub>2.5</sub> control strategies. In support of this control strategy, the ODEQ attainment plan and supporting analyses showed that: (1) the Klamath Falls area attained the standard, (2) control of direct PM<sub>2.5</sub> would reduce exceedances of the NAAQS, and (3) emissions from residential wood combustion were the largest contributors to PM<sub>2.5</sub> on polluted days. The EPA reviewed the ODEQ's attainment plan and proposes to find that this approach to direct PM<sub>2.5</sub> and precursors is appropriate for the Klamath Falls area and is consistent with the requirements of subpart 4.

#### 1. Quality Assured Monitoring Data Showing Attainment

As described in Section II. Finding of Attainment, the Klamath Falls area met the 2006 24-hour PM<sub>2.5</sub> NAAQS during the 2012–2014 monitoring period using the approach to direct PM<sub>2.5</sub> and precursor pollutants adopted by the State in the submitted attainment plan. Given the area's attainment of the 2006 24-hour PM<sub>2.5</sub> NAAQS and continued attainment, it follows that no additional controls of direct PM<sub>2.5</sub> and precursors beyond those described in the attainment plan are necessary for the area to timely attain the NAAQS. Because EPA's longstanding approach to precursors under subpart 4, as explained in the General Preamble, authorizes a state to establish that it can attain the NAAQS expeditiously by focusing on some but not all precursors, the EPA



believes that the ODEQ's submitted attainment plan for the Klamath Falls area is consistent with this aspect of subpart 4.

As previously discussed in the Attainment Demonstration section III. E., the ODEQ demonstrated the ability to reduce the emissions in Klamath Falls below  $35\mu\text{g}/\text{m}^3$  by December 2014. Control measures considered for demonstrating attainment are discussed in section III. H. RACT/RACM below, and the chosen methods primarily focus on the reduction of direct  $\text{PM}_{2.5}$ . Table 1 in the Attainment Demonstration section identifies the 2008 baseline design value as  $45.1\mu\text{g}/\text{m}^3$  and then shows how the direct  $\text{PM}_{2.5}$  projected air quality benefits from the chosen control strategies will achieve a future design value in 2014 below  $35\mu\text{g}/\text{m}^3$ . The RACT/RACM section will also identify that other reductions would be needed to advance the attainment date by one year, but that the remaining control measures were determined to not be economically and/or technologically feasible, or collectively amount to reductions necessary to advance attainment by one year -  $1.67\mu\text{g}/\text{m}^3$ .

## 2. Control of Direct Emissions of $\text{PM}_{2.5}$ Would Reduce Exceedances of the NAAQS

The ODEQ determined that direct  $\text{PM}_{2.5}$  was the primary contributor to winter time exceedances in the Klamath Falls area. As is typical of many areas in the Pacific Northwest region that experience  $\text{PM}_{2.5}$  exceedances from anthropogenic sources, these exceedances occur during the winter when temperatures are low and air stagnation conditions are present. These conditions lead to increases in residential wood heating which generate the majority of direct  $\text{PM}_{2.5}$  emissions reaching the monitor. This relationship is supported by a SANDWICH (Sulfate, Adjusted Nitrate, Derived Water, Inferred Carbonaceous Material Balance Approach) chemical speciation analysis on days that exceeded the standard and an analysis of primary and secondary organic aerosols conducted by Portland State University (PSU), as discussed above.

The SANDWICH chemical speciation analysis determined that PM<sub>2.5</sub> mass on days exceeding the standard was 80% organic and elemental carbon. The PSU study showed that the contributions from both biogenic and anthropogenic sources of secondary organic aerosols were minor, contributing 1% and 3%, respectively, to the total PM<sub>2.5</sub> design value. The bulk of emissions causing exceedances were from directly emitted organic and elemental carbon PM<sub>2.5</sub> (*See* attainment plan attachments 3.3f, 3.3g1, 3.3g2). Based on this weight of evidence, the ODEQ concluded that direct PM<sub>2.5</sub> was the primary contributor to exceedances of the 2006 24-hr PM<sub>2.5</sub> NAAQS at the regulatory monitor in the Klamath Falls area.

### 3. Emissions from Residential Wood Combustion Were the Largest Contributors to PM<sub>2.5</sub> on Polluted Days

The 2008 emissions inventory compiled by the ODEQ calculated a direct PM<sub>2.5</sub> emissions rate of 654.7 tpy. Approximately 62% of the total annual emissions were attributable to area sources, primarily of emissions from residential wood combustion. Worst case daily emissions of direct PM<sub>2.5</sub> were calculated at 5,420 pounds (lbs) per day with 53% of total emissions attributable to area sources, primarily emissions from residential wood combustion. To assess how these emissions translated into contributions at the monitor, the EPA conducted a PMF analysis as discussed above based on speciated data from the Klamath Falls violating monitor. The results of the PMF analysis showed that emissions of residential wood smoke contributed an estimated 64-72% of total PM<sub>2.5</sub> concentrations at the monitor (attachment 3.3h). Residential wood combustion also emits small amounts of SO<sub>2</sub>, NO<sub>x</sub>, VOC, and ammonia, 4%, 2%, 11%, and 6%, respectively, of the inventory for these precursors on the “worst case day.” So not only did primary organic and elemental carbon make up over 60% of the PM<sub>2.5</sub> mass at the monitor based on the emissions inventory data, PMF analysis, and speciation analyses, but control

measures to address residential wood combustion also had the collateral benefit of reducing the precursor inventory.

#### *General PM<sub>2.5</sub>*

According to the SANDWICH and PSU analyses secondary PM<sub>2.5</sub> conservatively comprised 20% of the PM<sub>2.5</sub> in Klamath Falls on days with monitored PM<sub>2.5</sub> concentrations above 25 µg/m<sup>3</sup>. By species, the percentages were 9.6% for nitrate, 4.2% for particle-bound water, 3% for anthropogenic secondary organic aerosols (SOA), 1.6% for sulfate, 1% for biogenic SOA, and 0.7% for ammonium.

The 2008 baseline emission inventory for NO<sub>x</sub> was 2,236 tpy annually and 15,483 lbs/day during wintertime PM<sub>2.5</sub> episodes. The non-road and on-road mobile source categories contributed 70% to annual and worst case day NO<sub>x</sub> emissions. The ODEQ's 2014 attainment inventory showed decreases from 2008 of over 30% in NO<sub>x</sub> on-road and non-road mobile source emissions attributed to federal mobile source control measures.<sup>4</sup> The decrease of 3,425 lbs/day from motor vehicle controls was greater than the NO<sub>x</sub> emissions from all the stationary point sources combined, two of which are already subject to NO<sub>x</sub> controls. The remaining 9% of NO<sub>x</sub> emissions were spread among area sources such as natural gas combustion and residential wood combustion.

Other secondary species were similarly small components and were generally emitted by multiple source categories. While VOCs were the largest source of precursor emissions on a pound per day basis (2,910.4 tpy annually; 22,754 lbs/day during wintertime episodes), the anthropogenic secondary organic carbon produced from such emissions only contributed 3% of

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<sup>4</sup> The General Preamble acknowledges that states can take into account reductions from existing control requirements. 57 FR 13358, April 16, 1992.

the PM<sub>2.5</sub> mass. Emissions of VOCs were split among the stationary point sources (45%), area sources (30%), and mobile sources (25%). Much of the SO<sub>2</sub> (109.9 tpy; 1,046 lbs/day) emissions were from fuel oil combustion, with the resulting ammonium sulfate and associated particle-bound water contributing less than 5% of the PM<sub>2.5</sub> mass. Ammonium on its own, disassociated from its sulfate and nitrate, was less than 1% of the PM<sub>2.5</sub> mass. Based on the weight of evidence provided in the attainment plan, the EPA finds that the ODEQ appropriately considered all precursors in their analysis.

#### *Industrial PM<sub>2.5</sub>*

With respect to emissions of PM<sub>2.5</sub> precursors from major stationary sources pursuant to section 189(e), the analyses discussed above, which were conducted for all sources generally, are similarly applicable to control of precursor emissions from stationary sources. The ODEQ identified four Title V stationary sources with annual primary PM<sub>2.5</sub> emissions exceeding 10 tpy for consideration in its RACT analysis. These sources were identified in the 2008 baseline emissions inventory as Columbia Forest Products (48.9 tpy), Collins Forest Products (48.4 tpy), Klamath Energy Cogeneration (39.9 tpy) and Jeld-Wen (17.3 tpy). Emissions of direct PM<sub>2.5</sub> from all other stationary sources in the aggregate amounted to less than 10 tpy. A consideration in the ODEQ's assessment of these facilities was AERMOD modeling which indicated that all industrial point sources combined contributed only 1% of the baseline primary PM<sub>2.5</sub> design value, as opposed to residential wood combustion which accounts for roughly two-thirds. These sources are located relatively far away from the area where the greatest PM<sub>2.5</sub> concentrations existed, as confirmed by the monitoring saturation study, compared to residential wood combustion which showed a much greater impact on PM<sub>2.5</sub> concentrations. Also, industrial stationary source stacks send emissions higher into the atmosphere, and the inversions that trap

area and mobile source emissions near the ground also reduce mixing of the elevated stack emissions to the surface.

In summary, the ODEQ provided data and analyses indicating that direct PM<sub>2.5</sub> was the main cause of exceedances of the 2006 24-hr PM<sub>2.5</sub> standard in Klamath Falls and that precursor emissions are relatively minor contributors to monitored violations in the Klamath Falls area.

#### **H. Reasonably Available Control Technology / Reasonably Available Control Measures (RACT/RACM)**

The Klamath Falls attainment plan addressed the RACT/RACM requirement under subpart 1. It did not directly discuss whether the analysis and selection of RACT/RACM also meets the subpart 4 requirements determined to be applicable in *NRDC v. EPA* because the Court decision occurred after the ODEQ's submittal of the attainment plan, and preliminary monitoring data showed that the area was on a path to come into attainment concurrent with the EPA's deadline for any additional submittals under subpart 4. The EPA in this notice addresses whether the RACT/RACM analysis complies with subpart 4 as well as subpart 1, and evaluates whether application of subpart 4 criteria would affect the control measures identified as part of the ODEQ's control strategy for the Klamath Falls area.

The general SIP planning requirements for nonattainment areas under subpart 1 include section 172(c)(1), which requires implementation of all RACM (including RACT). The CAA section 172(c) indicates that what constitutes RACM or RACT is related to what is necessary for attainment in a given area, as the provision states that nonattainment plans shall provide for attainment of the NAAQS in the area covered by the attainment plan.

The EPA based its remanded 2007 PM<sub>2.5</sub> Implementation Rule on the general attainment plan requirement for RACM and RACT in section 172(c). The EPA included requirements for

the process by which states should determine and establish what control measures would constitute RACM and RACT level controls for appropriate sources in a given nonattainment area. Specifically, in 40 CFR 51.1010(a), the EPA provided that a state should submit a demonstration that it had adopted all RACM and RACT “necessary to demonstrate attainment as expeditiously as practicable and to meet RFP requirements.” The EPA also required states to include a “list of the potential measures considered by the state, and information and analysis sufficient to support the state’s judgment that it has adopted all RACM, including RACT.” Moreover, in 40 CFR 51.1010(b), the EPA provided that a state could determine that certain otherwise available control measures are not RACM or RACT for sources in the area if, considered cumulatively, the measures not adopted would not advance the attainment date in the area by at least one year.

The SIP planning requirements under subpart 4 likewise impose upon states an obligation to develop attainment plans that impose RACM and RACT on sources within a nonattainment area. Section 189(a)(1)(C) requires that states with areas classified as moderate nonattainment areas must have SIP provisions to assure that RACM and RACT level controls are implemented by no later than four years after designation of the area. As with subpart 1, the terms RACM and RACT are not defined within subpart 4. Nor do the provisions of subpart 4 specify how states are to meet the RACM and RACT requirements. However, the EPA’s longstanding guidance in the General Preamble provides recommendations for appropriate considerations for determining what control measures constitute RACM and RACT for purposes of meeting the statutory requirements of subpart 4.

The EPA’s existing guidance for RACM and RACT under subpart 4 is comparable to the approach that the EPA set forth in the 2007 PM<sub>2.5</sub> Implementation Rule. The EPA’s guidance for

RACM under subpart 4 in the General Preamble includes: (1) A list of some potential measures for states to consider; (2) a statement of the EPA's expectation that the state will provide a reasoned explanation for a decision not to adopt a particular control measure; (3) recognition that some control measures might be unreasonable because the emissions from the affected sources in the area are *de minimis*; (4) an emphasis on state evaluation of potential control measures for reasonableness, considering factors such as technological feasibility and the cost of control; and (5) encouragement that states evaluating potential control measures imposed upon municipal or other governmental entities also include consideration of the impacts on such entities, and the possibility of partial implementation when full implementation would be infeasible (*e.g.*, phased implementation of measures such as road paving). 57 FR 13540, April 16, 1992.

With respect to RACT requirements, the EPA's existing guidance in the General Preamble: (1) Noted that RACT has historically been defined as "the lowest emission limit that a source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility;" (2) noted that RACT generally applies to stationary sources, both stack and fugitive emissions; (3) suggested that major stationary sources be the minimum starting point for a state's RACT analysis; and (4) recommended that states evaluate RACT not only for major stationary sources, but for other source categories as needed for attainment and considering the feasibility of controls. 57 FR 13540 at 13541, April 16, 1992.

For both RACM and RACT, the EPA notes that an overarching principle is that if a given control measure is not needed to attain the relevant NAAQS in a given area as expeditiously as practicable, then that control measure would not be required as RACM or RACT because it would not be reasonable to impose controls that are not in fact needed for attainment purposes. In both the 2007 PM<sub>2.5</sub> Implementation Rule interpreting the subpart 1 RACM and RACT

requirements and the General Preamble making recommendations for the subpart 4 RACM and RACT requirements, the focus is upon the process to identify emissions sources, to evaluate potential emissions controls, and to impose those control measures that are reasonable and that are necessary to bring the area into attainment as expeditiously as practicable, but by no later than the applicable attainment date for the area. The only exception is if the economically and technically feasible measures not adopted as RACT/RACM will collectively advance attainment by at least a year, then those measures must be adopted in most cases.

In its submitted attainment plan for the Klamath Falls area, the ODEQ addressed the RACM and RACT requirements of subpart 1 as interpreted by the EPA in the remanded 2007 PM<sub>2.5</sub> Implementation Rule. The EPA proposes to find that the ODEQ RACM and RACT analysis also meets the requirements of subpart 4 as explained in the General Preamble. As described below, the ODEQ evaluated which measures would constitute RACM and RACT in the Klamath Falls area.

1. First, the ODEQ ascertained that control of direct PM<sub>2.5</sub> emissions was necessary for attainment and that available RACM for direct PM<sub>2.5</sub> would obviate the need for additional controls for SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, and VOCs, beyond existing federal and state controls, in order to attain the 24-hr PM<sub>2.5</sub> NAAQS. As described in the Characterization of Klamath Falls Air Shed section above, the ODEQ identified direct PM<sub>2.5</sub> as the primary pollutant causing violations at the regulatory monitor in Klamath Falls, and was able to show that available RACM for direct PM<sub>2.5</sub> were sufficient to demonstrate attainment of the 2006 24-hr PM<sub>2.5</sub> standard by the subpart 1 attainment date of December 2014.

The EPA agrees that there are not additional reasonable controls available to reduce emissions of SO<sub>2</sub>, NH<sub>3</sub>, VOC, and NO<sub>x</sub> that collectively would provide for attainment of the



standard by at least one year sooner than provided for in the attainment demonstration. The EPA believes that the ODEQ's assessment of precursors sufficiently demonstrates that adoption of additional precursor controls is not reasonable or necessary for continued attainment of the 2006 PM<sub>2.5</sub> NAAQS for the subpart 4 requirements.

2. Second, the ODEQ evaluated the relevant emissions sources in the area. The ODEQ's control strategy focused primarily on RACM from "non-point sources" (*i.e.*, area sources) given that analyses showed direct PM<sub>2.5</sub> from these sources was the main contributor to exceedances of the PM<sub>2.5</sub> standard. While there was limited ability for controls on PM<sub>2.5</sub> precursors to advance attainment, this notice shows that there are existing controls on industrial and on road mobile precursor sources. As such, the attainment plan benefits from strategies that have already been considered and enacted and that applied to "point sources" (*i.e.*, major stationary sources), non-road mobile sources, and on-road mobile sources. Major stationary sources are controlled through the ODEQ's permitting programs and the mobile sources have been addressed via national and state measures expected to reduce mobile source emissions through fuel economy standards and vehicle emissions standards including Oregon Low Emission Vehicle regulations (LEV II/Tier 2 emissions standards). Table 2 provides a chart of certain RACT/RACM implemented for the Klamath Falls area. The table provides the RACT/RACM in two sections: Current Strategies and New Strategies. The current strategies are those that were initiated between 2007-12 and the future strategies are those that were initiated in 2012. All measures are being implemented currently. A full discussion of the RACT/RACM evaluated by the ODEQ is available in the Klamath Falls Attainment Plan.

**Table 2—RACT/RACM in Klamath Falls**

Emission Reduction Measure	Sector	Pollutant Addressed
<b><u>Current Strategies (2007 – present), currently implemented but not accounted for in the 2008 base year EI</u></b>		
<b>Residential Wood Combustion</b>		
Klamath Woodstove Curtailment Program – revised with lower thresholds & increased enforcement (Clean Air Ordinance)	Area	PM <sub>2.5</sub>
Woodstove Change-out Programs	Area	PM <sub>2.5</sub>
Heat Smart program removal of uncertified woodstoves upon sale of home	Area	PM <sub>2.5</sub>
<b>Open Burning</b>		
Shortened Open Burning Window (Klamath Clean Air Ordinance)	Area	PM <sub>2.5</sub>
<b>Fuel and Transportation Related</b>		
Low Emission Vehicle Program	Mobile	SO <sub>x</sub> , NO <sub>x</sub>
Road Paving	Area	PM <sub>2.5</sub>
Diesel Retrofits	Mobile	PM <sub>2.5</sub>
Fuel Economy	Mobile	SO <sub>x</sub>
<b>Industrial Point Sources</b>		
Maximum Achievable Control Technology (MACT) - hardboard and particleboard facilities	Point	PM <sub>2.5</sub> , SO <sub>x</sub>
<b><u>New Strategies (2012 - present)</u></b>		
<b>Residential Wood Combustion</b>		
Fireplace Standard	Area	PM <sub>2.5</sub>
Public Awareness	Area	PM <sub>2.5</sub>
<b>Industrial Point Sources</b>		
Opacity, Operation and Maintenance Plan Requirements	Point	PM <sub>2.5</sub>
Offset Requirements	Point	PM <sub>2.5</sub>
<b>Road Dust</b>		
Highway Road Sanding practices	Area	PM <sub>2.5</sub>

3. Third, the ODEQ has a demonstrated history of implementation success with respect to particulate matter control strategies. Given that the Klamath Falls area devised control measures to address nonattainment for PM<sub>10</sub> in the past, the area was already implementing a number of

relevant control strategies with demonstrated efficacy. For purposes of attaining the 2006 24-hour PM<sub>2.5</sub> NAAQS, the ODEQ and Klamath County strengthened some of these existing strategies, which were previously considered RACT/RACM for purposes of attaining the PM<sub>10</sub> NAAQS, to achieve PM<sub>2.5</sub> reductions to meet the stricter PM<sub>2.5</sub> standard (Klamath Falls PM<sub>10</sub> Attainment Plan - 62 FR 18047, April 14, 1997, PM<sub>10</sub> Maintenance Plan - 68 FR 60036, October 21, 2003).

In addition to considering the range of implemented strategies that had effectively controlled emissions to attain the PM<sub>10</sub> NAAQS, the ODEQ and the Klamath Falls community formed the Klamath Air Quality Advisory Committee (KAQAC) to evaluate and develop additional RACM/RACT at the county level to approve into the Klamath Falls PM<sub>2.5</sub> attainment plan. The KAQAC and the ODEQ contributed to the formal RACT/RACM analysis of current and future control strategies and provided recommendations to the county commissioners for approval.

The RACT/RACM adopted and updated by the ODEQ for the Klamath Falls area were projected to reduce the 24-hour PM<sub>2.5</sub> design value by approximately 11.7 µg/m<sup>3</sup> by 2014 (see table 3 below). Accordingly, the plan demonstrated attainment by projecting that the area's design value would be reduced from the 2008 base year design value of 45µg/m<sup>3</sup> to below 35µg/m<sup>3</sup> in 2014. Recent monitoring data for 2012-14 indicate that the plan was effective, reducing the design value to 34 µg/m<sup>3</sup>.

**Table 3—RACT/RACM Projected Air Quality Benefit for the Klamath Falls area**

<u>RACT/RACM</u>	Projected Air Quality Benefit (µg/m <sup>3</sup> )
<i>Primary measures</i>	
Klamath Clean Air Ordinance (updated) <ul style="list-style-type: none"> <li>• Woodstove curtailment – lower thresholds and increased enforcement</li> </ul>	9.6

• Shorter open burning window	
Woodstove Change-out Programs	1.0
Heat Smart- woodstove change-out upon sale of home	0.3
Maximum Achievable Control Technology (MACT) particleboard and hardboard	0.1
<b>subtotal 1</b>	<b>11.0</b>
<i>Additional measures</i>	
Public Awareness	0.6
New fireplace standards	0.1
Transportation and Fuel Related Emissions	Minimal
• Diesel Retrofits	
• Low Emission Vehicle Program	
• Fuel Economy	
Road Paving	Minimal
<b>subtotal 2</b>	<b>0.7</b>
<b>TOTAL</b>	<b>11.7</b>
	<b>11.7</b>

As seen in Table 3, the most important control strategies address residential wood combustion because the emissions inventory and source-receptor analyses identified residential wood combustion as the most significant contributor to PM<sub>2.5</sub> at the monitor on days that exceed the standard. The residential wood combustion strategies include an ongoing woodstove change-out program to replace woodstoves with cleaner, more efficient devices, and an updated Klamath Clean Air Ordinance that includes a strengthened woodstove curtailment program to reduce woodstove emissions on days when exceedances of the standard are most likely to occur.

The woodstove change-out program in Klamath Falls has proven effective for meeting the PM<sub>10</sub> standard and again was selected as a primary RACT/RACM strategy for the PM<sub>2.5</sub> attainment plan. The program, currently implemented by the City of Klamath Falls, provides financial incentives for homeowners to replace older uncertified woodstoves with newer, cleaner certified woodstoves. Between 2008 and 2011, the change-out program replaced 584 uncertified woodstoves in the area. The removal and destruction of the old woodstoves assures that the emissions reductions are permanent, and the change-outs are enforceable because there is a

statewide building code that prohibits the installation of any uncertified woodstove in the future. The 584 uncertified stoves that have been changed out were estimated in the attainment demonstration to collectively provide emission reductions that would lead to an air quality improvement of  $1.0 \mu\text{g}/\text{m}^3$ . The ODEQ intends to continue its financial support of this program in the future for purposes of meeting and maintaining the standard, but it has not taken any credit in the attainment demonstration for future change-outs.

Previous wood burning curtailment programs were important in helping this area attain the 1987  $\text{PM}_{10}$  standard and the 1997  $\text{PM}_{2.5}$  NAAQS. The Klamath Clean Air Ordinance, updated in 2007 and again in 2012, is the RACM providing the greatest emissions reductions in the attainment demonstration at  $9.6 \mu\text{g}/\text{m}^3$ . The Ordinance includes a curtailment program that restricts combustion in residential solid fuel-fired appliances on yellow and red advisory days when the county's air pollution forecast is for high  $\text{PM}_{2.5}$  concentrations. The curtailment program is implemented through advisories communicated to the community on a daily basis. On yellow advisory days when the predicted forecast is for a 24-hour average  $\text{PM}_{2.5}$  between 16 and  $30 \mu\text{g}/\text{m}^3$ , residents within the air quality zone are prohibited from using non-certified woodstoves, non-certified woodstove insert, or a fireplace. Only certified solid fuel-fired appliances and pellet stoves can be used. On red advisory days, called when  $\text{PM}_{2.5}$  levels are forecast to be above  $30 \mu\text{g}/\text{m}^3$ , the operation of woodstoves is prohibited except in limited cases where Klamath County has granted a prior hardship exemption. Use of pellet stoves are still allowed on red days. The Ordinance also limits open burning of residential yard debris to only 15 days of the winter period. These days are selected based on a forecast of good ventilation. In addition, the ODEQ has committed biennial funding to assist with the County's implementation and enforcement of the strengthened curtailment program (attachments 3.3r1 and 3.3r2). The

curtailment program is a permanent and enforceable measure. The program was duly adopted as a Klamath County ordinance and as part of the ODEQ's administrative rules. It imposes restrictions on wood burning when the PM<sub>2.5</sub> forecast reaches certain thresholds, and establishes clear and enforceable restrictions during yellow and red advisory days.

Together, the woodstove change-out and curtailment programs account for over 95% of the calculated PM<sub>2.5</sub> emissions reductions (10 µg/m<sup>3</sup>) needed to demonstrate attainment. The implementation of earlier versions of these programs helped Klamath Falls to successfully attain the PM<sub>10</sub> NAAQS and to meet the 1997 PM<sub>2.5</sub> NAAQS. The ODEQ's RACT/RACM analyses determined that implementation of the curtailment and woodstove change-out programs as control strategies, in conjunction with other adopted strategies providing minor emissions reductions, would provide for expeditious attainment of the 2006 PM<sub>2.5</sub> NAAQS.

Additional control strategies, listed in Table 3, include the following: the Oregon Heat Smart program, that requires removal of uncertified woodstoves upon the sale of homes (0.3 µg/m<sup>3</sup>); emissions reductions for implementation of Federal MACT standards establishing tighter opacity standards applicable to hardboard and particle board manufacturers in the nonattainment area (0.1 µg/m<sup>3</sup>); programs to enhance public awareness to ensure effective compliance with the Klamath Air Quality Ordinance and general proper woodstove burning and maintenance (0.6 µg/m<sup>3</sup>); new fireplace standards (0.1 µg/m<sup>3</sup>); emissions reductions from Federal fuel economy standards and state vehicle emissions regulations; and road paving to reduce re-entrained road dust. The public awareness measure is considered a voluntary measure and has been funded annually by the ODEQ for purposes meeting the PM<sub>2.5</sub> standard. While not a permanent and enforceable measure, the program to enhance education, outreach, and public awareness is key to supporting the implementation of the curtailment including compliance rate and the

implementation of the woodstove change-out programs. Details of the intergovernmental agreement between the ODEQ and Klamath County can be found in attachment 3.3s, including the statement of work, funding provided, and performance measures. Further discussion of these ancillary measures can be found in the Klamath Falls Attainment Plan (attachments 3.3a, p28-40; 3.3s).

Existing controls on industrial sources are also implemented within the Klamath Falls nonattainment area. The stationary sources identified in the ODEQ's RACT analysis already had limits in place for direct PM<sub>2.5</sub> and precursors, due to existing permitted controls or anticipated future controls such as the hardboard and particle board Maximum Achievable Control Technology (MACT 40 CFR part 63 subpart DDDD). As such, the ODEQ assumed no emissions growth for major permitted point sources in the modeling demonstration between 2008 and 2014. For example, Klamath Energy Cogeneration facility is a natural gas fired power plant with selective catalytic reduction (SCR) which limits NO<sub>x</sub> emissions. Between the 2008 baseline emissions inventory and the 2014 attainment year inventory, direct PM<sub>2.5</sub> emissions were predicted to decline from 39.3 to 19.3 tpy, however all precursors were predicted to remain stable due to permit limits (NO<sub>x</sub> = 172.2 tpy, SO<sub>2</sub> = 19.5 tpy, VOC = 82.5 tpy, and NH<sub>3</sub> = 68.9 tpy). The Jeld-Wen facility includes a variety of business types such as wood products and chrome plating, with 2014 attainment year inventories of direct PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub>, VOC, and NH<sub>3</sub> emissions equal to 10.9, 37.6, 1.9, 165.9, and 0.3 tpy, respectively. Direct PM<sub>2.5</sub> emissions at Jeld-Wen were projected to decline from 17.3 tpy in 2008 to 10.9 tpy in 2014 due to the hardboard and particle board MACT discussed above, but all other precursor emission were projected to remain constant due to existing permit controls. Collins Products is a reconstituted wood products facility that uses primarily natural gas, with 2014 attainment year inventories of

direct PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub>, VOC, and NH<sub>3</sub> emissions equal to 31.0, 9.4, 0.1, 529.8, and 0.0 tpy, respectively. Most of the larger emission units at Collins Products were controlled via fabric filters for particulate matter. The hardboard bake oven was also controlled by a regenerative thermal oxidizer / regenerative catalytic oxidizer for VOC control. Direct PM<sub>2.5</sub> emissions at Collins Products were projected to decline from 48.4 tpy in 2008 to 31.0 tpy in 2014, also due to the hardboard and particle board MACT, with all precursor emissions projected to remain constant due to existing permit limits. Columbia Forest Products is a plywood manufacturer with 2014 attainment year inventories of direct PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub>, VOC, and NH<sub>3</sub> emissions equal to 48.9, 53.5, 1.4, 41.2, and 0.3 tpy, respectively. The facility has two wood fired boilers, one of which was equipped with a multiclone for particulate matter control. Direct PM<sub>2.5</sub> and all precursors were projected by the ODEQ to remain stable between 2008 and the 2014 attainment year inventory due to the existing permit controls.

For on-road mobile sources, in the 2014 attainment year inventory the ODEQ projected significant NO<sub>x</sub> emission reductions gained through improved motor vehicle fuel economy and emissions standards, with little opportunity for improvement among the remaining smaller sources. Other secondary species were demonstrated to be minor contributors to PM<sub>2.5</sub> mass and their emissions are distributed among multiple source sectors. Emissions of NO<sub>x</sub>, NH<sub>3</sub>, and VOCs are projected to moderately decrease by 2014 due to Federal mobile source controls including the *Tier 2 Emission Standards for Vehicles and Gasoline Sulfur Standards*. These emission control requirements result in lower VOC and NO<sub>x</sub> emissions from new cars and light duty trucks, including sport utility vehicles. The Federal rules were phased in between 2004 and 2009. The EPA has estimated that, by the end of the phase-in period, the following vehicle NO<sub>x</sub> emission reductions will occur nationwide: passenger cars (light duty vehicles) (77 percent);



light duty trucks, minivans, and sports utility vehicles (86 percent); and, larger sports utility vehicles, vans, and heavier trucks (69 to 95 percent). VOC emission reductions are expected to range from 12 to 18 percent, depending on vehicle class, over the same period. The ODEQ estimated the on-road emissions reductions due to federal rules (Tier 2) in the attainment year. Additional on-road emission reductions are expected to occur as the fleet continues to turn over and new Tier 3 vehicle and fuel standards are phased in. In July 2000, the EPA issued a *The Heavy-Duty Diesel Engine Rule*, effective in 2004, which includes standards limiting the sulfur content of diesel fuel. A second phase took effect in 2007 which further reduced the highway diesel fuel sulfur content to 15 parts per million, leading to additional reductions in combustion NO<sub>x</sub> and VOC emissions. This proposed rule is expected to achieve a 95% reduction in NO<sub>x</sub> emissions from diesel trucks and buses. The EPA issued the *Nonroad Diesel Rule* in 2004. This proposed rule applies to diesel engines used in industries, such as construction, agriculture, and mining. It is estimated that compliance with this proposed rule will cut NO<sub>x</sub> emissions from nonroad diesel engines by up to 90 percent. Some of these emission reductions were projected to occur by the 2014 attainment year with additional emission reductions following attainment.

As shown in table 1, the control strategies included in the attainment plan were projected to provide direct PM<sub>2.5</sub> projected air quality benefits resulting in an 11.7 µg/m<sup>3</sup> reduction in the 24-hour PM<sub>2.5</sub> design value, to a 2014 modeled value of 34.6 µg/m<sup>3</sup>. The implementation of these control strategies brought the area into attainment of the 2006 PM<sub>2.5</sub> NAAQS by December 2014. Consistent with the D.C. Circuit Court's decision in *NRDC v. EPA*, the control measures identified by the ODEQ as RACM and RACT need to meet the requirements of section 189(a)(1)(C), which requires that all RACM for a Moderate area be implemented by no later than four years after designation. The Klamath Falls area was designated nonattainment on

November 13, 2009, and thus according to section 189(a)(1)(C), all necessary RACT/RACM should have been implemented by no later than November 2013. The ODEQ and Klamath County adopted and began implementing the control measures identified as RACM/RACT prior to the submission of the Klamath Falls attainment plan to the EPA in December 2012. Consequently, the EPA believes that the ODEQ complied with the four-year RACT/RACM implementation requirement.

4. Fourth, the ODEQ and the KAQAC identified and evaluated a wide range of additional potential control measures as described in the KAQAC report. The KAQAC report evaluated additional control measures for purposes of determining if they could reasonably provide additional substantive emissions reductions. Between March 2011 and February 2012, the KAQAC met 13 times to review the state of air quality in Klamath Falls and develop recommendations of suggested control measures for approval by the Klamath County Commissioners and incorporation into the ODEQ's attainment plan as RACT/RACM. The KAQAC reviewed 79 control measures and evaluated the measures in light of factors such as environmental, health, economic, social, and technological feasibility. The KAQAC's findings and recommendations are summarized in the ODEQ's Klamath Falls attainment plan and presented in attachments 3.3p-q.

Although the ODEQ and Klamath County considered a wide range of additional strategies, a majority of the strategies were eliminated as not reasonable because they were determined to be technologically or economically infeasible. For this reason, many of these control measures were screened out early in the process through application of the EPA's criteria for determination of RACT/RACM, and were therefore not quantified for purposes of determining if they would advance the attainment date by one year. Given that the area needed

to identify 10  $\mu\text{g}/\text{m}^3$  of reductions over six years (e.g., 2008 base year to 2014 attainment year) to get from 45  $\mu\text{g}/\text{m}^3$  to 35  $\mu\text{g}/\text{m}^3$ , one year of reductions was roughly 1.67  $\mu\text{g}/\text{m}^3$  for the Klamath Falls attainment plan. The remaining control measures were provided by the KQAAC as a set of recommended RACT/RACM for the Klamath County Commissioners to adopt. The final control measures adopted by Klamath County were included in the plan with additional control measures adopted by the ODEQ to satisfy the RACT/RACM planning requirements. The emissions reductions from the implementation of the adopted enforceable measures are sufficient to demonstrate attainment and provide a buffer below the 35  $\mu\text{g}/\text{m}^3$  standard.

In the Klamath Falls Attainment Plan (pages 45-47), the ODEQ applied the primary control measures to the base year design value to demonstrate that they would be able to bring the Klamath Falls future design value below the 35  $\mu\text{g}/\text{m}^3$  standard. To provide a buffer they also took credit for additional emissions reductions attributed to the new fireplace standards and the education program. Table 3 in this document identifies the measures that the ODEQ identified as necessary to bring the area below the standard as primary measures and these account for approximately 11.0  $\mu\text{g}/\text{m}^3$ . Table 3 also includes the additional controls that meet the RACM/RACT criteria, listed as additional measures, and shows that they account for approximately 0.7  $\mu\text{g}/\text{m}^3$  of emissions reduction. With the information provided in the submittal the EPA identified that these additional measures of 0.7  $\mu\text{g}/\text{m}^3$  were not enough to advance the attainment date by one year (i.e., 1.67  $\mu\text{g}/\text{m}^3$ ).

#### *Not Necessary for Attainment*

As described in this action, the exceedances at the Peterson School monitor were from direct  $\text{PM}_{2.5}$ , and the main source category responsible for emissions of direct  $\text{PM}_{2.5}$  was residential wood combustion. In the attainment demonstration, the economically and

technologically feasible control measures chosen by the ODEQ focused on reduction of direct PM<sub>2.5</sub> from residential wood combustion. The two major controls were in the form of strengthening the woodstove curtailment program and the change-out of residential woodstoves with more efficient, lower emissions EPA-certified woodstoves. With these measures, the ODEQ was able to demonstrate attainment by the end of 2014, which the area met based upon quality-assured, quality-controlled, and certified ambient air monitoring data.

*Not Possible to Advance Attainment by One Year*

Under the attainment plan requirements, an area must implement all reasonably available control measures that would advance the date of attainment by one year, or as expeditiously as possible. In the attainment demonstration submitted in the Klamath Falls attainment plan, the ODEQ identified that the area would attain the standard by December 2014. As the area already attained the 2006 24-hr PM<sub>2.5</sub> standard in December 2014, attaining as expeditiously as possible is no longer relevant.

The EPA proposes to find that the ODEQ's attainment plan meets the RACM/RACT requirements for the 2006 PM<sub>2.5</sub> NAAQS. This proposed approval is based upon the State's compliance with the requirements of the general preamble and the EPA's analysis that the submitted attainment plan also meets the statutory RACM and RACT requirements of subpart 4. The plan is consistent with subparts 1 and 4 of the statute, and with the guidance provided in the general preamble, such as identifying relevant sources and potential control measures for those sources, and for evaluating whether potential control measures are reasonable based upon factors such as technological and economic feasibility. Most importantly, under either subpart, the state is required to determine RACM and RACT measures in light of the emissions reductions needed to bring the area in question into attainment.

The EPA proposes to conclude that the ODEQ's attainment plan analysis sufficiently evaluated the relevant sources and controls and appropriately selected RACM/RACT measures that meet the requirements of subparts 1 and 4 and provided for the timely attainment of the 2006 PM<sub>2.5</sub> NAAQS. The ODEQ identified emissions sources, evaluated potential control measures, and adopted reasonably available control measures consistent with CAA requirements in subparts 1 and 4, and with existing EPA guidance. The ODEQ's attainment plan included sufficient information to determine that implementation of additional precursor controls was unnecessary for timely attainment of the NAAQS. Relying on its selected RACM/RACT, the ODEQ demonstrated attainment with the 2006 PM<sub>2.5</sub> NAAQS by December 2014. The EPA is proposing to approve the ODEQ's analysis and selection of RACM/RACT as meeting the requirements of subparts 1 and 4.

## **I. Contingency Measures**

Contingency measures are additional measures to be implemented in the event that an area fails to attain a standard by its applicable attainment date, or fails to meet Reasonable Further Progress (RFP). These measures must be fully adopted rules or control measures that take effect without any further action by the state or the EPA. Contingency measures should also contain trigger mechanisms and an implementation schedule. In addition, they should be measures not already included in the SIP control strategy, and should provide for emission reductions equivalent to one year of RFP.

The ODEQ developed contingency measures for the Klamath Falls PM<sub>2.5</sub> attainment plan in accordance with the contingency measures requirement in section 172(c)(9) of subpart 1 of the CAA (Subpart 4 does not contain contingency measure requirements.) The primary contingency measure in the ODEQ attainment plan is a prohibition on burning in all uncertified fireplaces

during the winter wood heating season. This contingency measure was adopted as part of the Klamath County 2012 Ordinance (attachment 3.3r2) and the ODEQ's administrative rules, and the contingency measures automatically take effect without any further action by ODEQ if the area fails to attain by the attainment date. Implementation of the fireplace contingency measure was projected to reduce the future year design value by the one year of RFP reductions (1.67  $\mu\text{g}/\text{m}^3$  for Klamath Falls) expected for contingency measures. The EPA proposes to approve the contingency measures in the Klamath Falls attainment plan as meeting the requirements of section 172(c)(9). The contingency measures within the Oregon Administrative Rules (OAR) for proposed approval include 340-240-0570, 340-240-0580, 340-240-0610, 340-240-0620, 340-240-0630, 340-262-1000 and are listed in section V. Incorporation by reference, Table 5.

#### **J. Reasonable Further Progress (RFP) and Quantitative Milestones**

For  $\text{PM}_{2.5}$  nonattainment areas, two statutory provisions apply regarding RFP and quantitative milestones. First, under subpart 1, CAA section 172(c)(2) requires attainment plans to provide for RFP, which is defined in CAA section 171(l) as "such annual incremental reductions in emissions of the relevant air pollutant as are required by [Part D of Title I] or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date." Reasonable further progress is a requirement to assure that states make steady, incremental progress toward attaining air quality standards, rather than deferring implementation of control measures and thereby emission reductions until some time just before the date by which the standard is to be attained. Second, under subpart 4, CAA section 189(c) requires that a  $\text{PM}_{10}$  NAAQS attainment plan submission have "quantitative milestones which are to be achieved every 3 years until the area is

redesignated to attainment and which demonstrate reasonable further progress...toward attainment by the applicable date.”

While the ODEQ’s attainment plan was developed to meet the subpart 1 RFP requirements, the EPA is also evaluating the plan to determine whether it meets the subpart 4 quantitative milestones requirement. That section is comparable to the requirements of section 172(c)(1), in that it requires attainment plans under subpart 4 to meet a RFP requirement. However, section 189(c) also provides that an attainment plan should have quantitative milestones which are to be achieved every three years until the area is redesignated to attainment, and which demonstrate reasonable further progress toward attainment by the applicable attainment date. The EPA’s General Preamble and Addendum provide guidance interpreting this statutory provision and are useful to evaluate this requirement of subpart 4.<sup>5</sup>

In particular, the EPA’s guidance recommendations with respect to section 189(c) include several relevant features: (1) that the control measures comprising the RFP should be implemented and in place to meet the milestone requirement; (2) that it is reasonable for the three year periods for milestones to run from the date that the attainment plan submission is due; and (3) that the precise form quantitative milestones should take is not specified and they may take whatever form would allow progress to be quantified or measured adequately.<sup>6</sup> As discussed below, the EPA believes that the ODEQ’s attainment plan adequately meets both the RFP and quantitative milestone requirements for this area for the 2006 24-hour PM<sub>2.5</sub> NAAQS.

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<sup>5</sup> See General Preamble, 57 FR 13539, April 16, 1992; Addendum, 59 FR 42015-17, August 16, 1994.

<sup>6</sup> Merely as examples, EPA noted some potential approaches, such as percent implementation of control strategies, percent compliance with implemented control measures, and adherence to a compliance schedule. This list was clearly not exhaustive and reflected that the purpose of such milestones is merely to provide an objective way to assess that the area is making progress towards attainment by the applicable attainment date. See Addendum, 59 FR 42016, August 16, 1994.

First, although not presented as control measures that would achieve reductions by a specified three year milestone, the ODEQ's attainment plan contained control measures that were already implemented and in place and, in fact, were achieving necessary emission reductions to meet RFP and quantitative milestone requirements. For example, the woodstoves change-out program commenced in 2008 and achieved sustained and quantifiable emission reductions between 2008 and 2011. The ODEQ calculated the emissions reductions associated with the number of woodstoves exchanged in each of those years. In addition, the ODEQ quantified the estimated number of woodstove change-outs resulting from implementation of the Heat Smart program and the associated emissions reductions for each calendar year. These values in turn were relied upon to demonstrate attainment of the 2006 24-hour NAAQS by the attainment date (refer to Table 9 and Table 10 in Attachment 3.3a).

Second, even under the more aggressive 18-month statutory attainment plan due date in subpart 4, the control measures in the ODEQ's attainment plan were in place and achieving reductions within three years of submission. The Klamath Falls area was designated nonattainment in November 2009, and under subpart 4 an attainment plan would have been due in June 2011. As noted in the RACM/RACT discussion (section III.E), the attainment plan consisted of control measures including past strategies implemented prior to 2008 and new strategies implemented after 2012. The past strategies included the woodstove change-out program with emission reductions achieved through implementation in 2008-2011, the Oregon Heat Smart program, and the woodstove curtailment program. While not explicitly identified as quantitative measures in the 2012 ODEQ submission, the state relied upon these primary control measures in the attainment plan to provide the bulk of the emissions reductions needed to bring the area into attainment, and were achieving reductions well within three years from the subpart



4 attainment plan submission date. In addition, there is no need to evaluate whether the attainment plan accounts for a second three-year milestone because the plan demonstrates attainment in December 2014 before the occurrence of the second milestone.

Third, the ODEQ's attainment plan provided information sufficient to quantify the amount of emissions reductions to be achieved by pollutant and control measure by the December 2014 attainment date. The quantification of reductions is found in the emissions inventory table in the attainment plan and emissions inventory, as well as calculated from the emissions reductions associated with each control strategy in the attainment demonstration (Table 3, above). Thus, the attainment plan did quantify the emission reductions that would occur at a point in time that was appropriate for a three year milestone, regardless of what the statutory SIP submission date was under either subpart 1 or subpart 4. The ODEQ's attainment plan contained control measures that achieved annual emissions reductions and associated air quality improvements between the time of the nonattainment designation and the time the area attained the standard that are sufficient to demonstrate RFP under subpart 1. The timely implementation of these control measures may be viewed as satisfying the quantitative milestone requirements that apply under subpart 4.

The EPA proposes to approve the submitted Klamath Falls attainment plan as meeting both the RFP and quantitative milestone requirements. The plan provides sufficient data and analyses that demonstrate emission reductions that provide reasonable progress towards attainment in December 2014. The key control strategies for attainment were implemented and achieving emissions reductions prior to the attainment plan due date under subpart 4 and within the three-year quantitative milestone requirement. This is consistent with the purpose of the milestone requirement which is to "provide for emission reductions adequate to achieve the

standards by the applicable attainment date" (H.R. Rep. No. 480, 101st Cong. 2d Sess. 267 (1990)). The ODEQ demonstrated progress toward attainment in December 2014 and successfully implemented the control measures expected to achieve the NAAQS by this date. Furthermore, since Klamath Falls has attained the 2006 PM<sub>2.5</sub> NAAQS by the demonstrated date, this provides further support that RFP and quantitative milestones were being met at the appropriate time.

#### **K. Conformity Requirements**

##### **Transportation Conformity and the Motor Vehicle Emissions Budget (MVEB)**

Section 176(c) of the CAA requires Federal actions in nonattainment and maintenance areas to “conform to” the goals of SIPs. This means that such actions will not cause or contribute to violations of a NAAQS, worsen the severity of an existing violation, or delay timely attainment of any NAAQS or any interim milestone. Actions involving Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) funding or approval are subject to the national transportation conformity rule (40 CFR part 93, subpart A) as well as the Oregon transportation conformity SIP which cites the national rule (77 FR 60627, October 4, 2012). Under this rule, metropolitan planning organizations (MPOs) in nonattainment and maintenance areas coordinate with state air quality and transportation agencies, the EPA, and the FHWA and FTA to demonstrate that their long-range transportation plans (“plans”) and transportation improvement programs (TIPs) conform to applicable SIPs. This is typically determined by showing that estimated emissions from existing and planned highway and transit systems are less than or equal to the motor vehicle emissions budgets (budgets) contained in a SIP.

**Table 4—2014 Motor Vehicle Emissions Budgets for Klamath Falls**

<b>Inventory</b>	<b>PM<sub>2.5</sub></b>	<b>NO<sub>x</sub></b>

Worst Case Winter PM <sub>2.5</sub> Season	699 lbs/day	4,834 lbs/day
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For motor vehicle emissions budgets to be approvable, they must meet, at a minimum, the EPA's adequacy criteria (40 CFR 93.118(e)(4)). The EPA has reviewed the motor vehicle emissions budgets listed above in Table 4 and found that they are consistent with the attainment of the 2006 24-hour PM<sub>2.5</sub> NAAQS and meet the criteria for adequacy and approval. The EPA found the budgets located in Table 4 adequate (80 FR 45654; July 31, 2015). The EPA proposes to approve Oregon's MVEBs in Table 4 for 2014 for the 24-hour PM<sub>2.5</sub> NAAQS for the Klamath Falls nonattainment area. As a clarification, only the 2014 MVEB in the submittal is applicable to the attainment plan and only the 24-hour budget will be used for conformity purposes. As such, the EPA believes that these motor vehicle emissions meet applicable requirements for such budgets for purposes of the 2006 24-hour PM<sub>2.5</sub> NAAQS for transportation conformity purposes.

**M. Klamath Falls Exceptional Event Demonstration and Concurrence**

The CAA allows for the exclusion of air quality monitoring data from design value calculations when there are exceedances caused by events, such as wildfires, that meet the criteria for an exceptional event identified in the EPA's implementing regulations, the Exceptional Events Rule at 40 CFR 50.14. Emissions from wildfires influenced PM<sub>2.5</sub> concentrations recorded at the Klamath Falls Peterson School monitor on September 30, 2009; August 25, 28 and 31, 2012; and July 30 and August 5, 2013. The ODEQ submitted an exceptional events demonstration for the 2009 wildfire with which the EPA concurred on June 29, 2012. The 2009 event had regulatory significance for purposes of the attainment demonstration in the ODEQ's Klamath Falls attainment plan submittal. The ODEQ also submitted an exceptional events demonstration for the 2012 and 2013 wildfires with which the

EPA concurred on February 18, 2015. The exclusion of data influenced by the 2012 and 2013 wildfires affected the design value for 2012-2014. Further details on the ODEQ's analyses and the EPA's concurrences can be found in the docket for this regulatory action. The EPA proposes to approve all of the concurred dates listed above as detailed in the docket as exceptional events to be removed from the data set used for regulatory purposes and to rely on the calculated values that exclude the event-influenced data in this proposed finding of attainment for the 2006 PM<sub>2.5</sub> NAAQS.

#### **IV. Proposed Action**

The EPA proposes to find that the Klamath Falls area attained the 2006 24-hour PM<sub>2.5</sub> NAAQS by the applicable attainment date. The EPA proposes to approve the PM<sub>2.5</sub> attainment plan for the Klamath Falls nonattainment area. As explained above, the EPA believes that the attainment plan submitted by Oregon, though not expressed in terms of subpart 4 requirements, substantively meets the requirements of subpart 4. Specifically, the attainment plan included a weight of evidence demonstration that the area would attain by the statutory attainment date that applied under a subpart 1 regime and a full year before the latest allowable subpart 4 moderate area attainment date. In addition, the plan meets the substantive requirements applicable under subparts 1 and 4 for RACM/RACT, base-year emissions inventories, RFP and quantitative milestones, and contingency measures. The plan also included MVEBs to be used for transportation conformity purposes for Klamath Falls. Accordingly, the EPA is proposing to determine that the SIP meets applicable requirements for purposes of approval under section 110(k) of the CAA. The EPA also proposes to approve the rules submitted and the exceptional event demonstration discussed in this action. Finally, we propose to determine that the area has clean data based on quality-assured and quality-controlled 2012-2014 ambient air monitoring

data for the 2006 24-hour PM<sub>2.5</sub> NAAQS. As provided in 40 CFR 51.1004(c), if the EPA finalizes this determination, it will suspend the requirements for the area to submit an attainment demonstration, associated RACM, RFP, contingency measures, and any other planning SIP requirements related to the attainment of the 2006 PM<sub>2.5</sub> NAAQS, so long as the area continues to meet the standard. Although a CDD suspends the requirement for submission of certain attainment planning elements, it does not relieve the EPA of its responsibility to take action on a state's SIP submission. As described in this action, the EPA is proposing to fully approve the remaining elements of the Klamath Falls nonattainment plan as meeting the requirements of the CAA.

## V. Incorporation by reference

The EPA is proposing to approve regulatory text that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, the EPA is proposing to incorporate by reference the rules described in this preamble and listed in Table 5 below. The EPA has made, and will continue to make, these documents generally available electronically through [www.regulations.gov](http://www.regulations.gov) and/or in hard copy at the appropriate EPA office (see the ADDRESSES section of this preamble for more information).

**Table 5—Proposed Rules for Incorporation by Reference**

### **EPA APPROVED OREGON ADMINISTRATIVE RULES (OAR)**

<b>State Citation</b>	<b>Title/Subject</b>	<b>State Effective Date</b>	<b>EPA Approval Date</b>	<b>Explanations</b>
<b>Division 240 - Rules for Areas with Unique Air Quality Needs</b>				
Klamath Falls Nonattainment Area Contingency Measures				
240-0570	Applicability	12/11/2012		
240-0580	Existing Industrial Sources Control Efficiency	12/11/2012		

240-0610	Continuous Monitoring for Industrial Sources	12/11/2012		
240-0620	Contingency Measures: New Industrial Sources	12/11/2012		
240-0630	Contingency Enhanced Curtailment of Use of Solid Fuel Burning Devices and Fireplaces	12/11/2012		
<b>Division 262 - Heat Smart Program for Residential Woodstoves and Other Solid Fuel Heating Devices</b>				
262-1000	Wood Burning Contingency Measures for PM <sub>2.5</sub> Nonattainment Areas	12/11/2012		

## **VI. Statutory and Executive Order Reviews**

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, the EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely approves state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this action:

- is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);

- does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the Clean Air Act; and
- does not provide the EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this proposed rule does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply on any Indian reservation land in Oregon or any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction.

**List of Subjects in 40 CFR Part 52**

Environmental protection, Air pollution control, Incorporation by reference, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: April 1, 2016.

Dennis J. McLerran,  
Regional Administrator,  
Region 10.

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